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## The Electroencephalogram in Epilepsy

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BY FAR THE GREATEST NUMBER of patients referred to the electroencephalographic laboratory in a general hospital are sent there because of suspicion of a convulsive disorder. The referring physician wants to know whether the patient has a convulsive disorder, and if so what may be the cause of it. That the electroencephalographer is not always able to provide a definite answer to these questions comes as a disappointment to many physicians. This is not unreasonable, since there are reports in the literature that would imply the electroencephalograph is next to infallible in the diagnosis of epilepsy.

Gibbs, Davis, and Lennox in 1935<sup>4</sup> reported the characteristic electrical findings during epileptic seizures, and noted that similar patterns occurred in patients with petit mal between seizures. Walter in 1937<sup>9</sup> found that of a group of patients with seizures about half would have abnormal electroencephalograms and that the majority of those with such abnormalities would be persons under 40 years of age with idiopathic epilepsy. The same year Gibbs, Gibbs and Lennox<sup>6</sup> went so far as to define epilepsy as "paroxysmal cerebral dysrhythmia," implying that the electrical abnormality was of primary importance. Jasper and Kershman<sup>7</sup> in 1941 denied the specificity of the electrical abnormality for the type of seizure but stated that they found abnormal records in 95 per cent of 494 patients with clinical epilepsy. They felt that bursts of higher voltage, which they termed *hypersynchrony*, were the important feature, rather than the "dysrhythmia" stressed by Gibbs. Finley and Dynes<sup>2, 3</sup> also disagreed with

*• In light of the considerable divergence of opinion among various investigators regarding the incidence of electroencephalographic abnormality in patients with convulsive disorders, the author made a study of his own records of 430 patients with a diagnosis of epilepsy. In 122 the seizures were symptomatic, in the remainder idiopathic, and the overall incidence of electroencephalographic abnormality was little different in the two groups. In the whole series 64.9 per cent showed abnormal tracings, while in those under 16 years of age the incidence was 71.8 per cent. The highest incidence was in patients in whom seizures had begun when they were between 10 and 15 years of age and in those with a duration of seizures from 5 to 10 years. Of patients with clinical petit mal, 76 per cent had abnormal records, but only 34.6 showed petit mal complexes. Lateralized or focal abnormality was three times as frequent in the symptomatic as in the idiopathic group.*

Gibbs on the specificity of the epileptic pattern, and reported that 86 per cent of 626 epileptics had abnormal tracings.

While Lennox<sup>8</sup> stated that 90 per cent of epileptic persons show "pronounced disturbances of the electrical waves of the brain" in a seizure-free period, the very complete tabulation of results in a large number of patients published in 1943 by Gibbs, Gibbs and Lennox<sup>5</sup> shows that the incidence of abnormal tracings varies with the age of the epileptic patient, and that if slightly abnormal tracings, which have a rather high incidence in subjects without epi-

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## EDITORIAL

### Audio-Digest Foundation

ONE OF THE ROUTINE, unpublicized actions of the C.M.A. Interim Session of the House of Delegates was the approval of the acquisition by the Association of Audio-Digest. This operation has been under way in Los Angeles for some months, on a private basis, and has attracted considerable attention throughout the country.

As originally put together by Jerry L. Pettis, an associate director of public relations for the California Medical Association, Audio-Digest undertook to prepare weekly tape recordings of digested current medical literature. The primary goal was the general practitioner, who was likely to be too busy to read the periodicals coming into his office and likewise too remote to have access to various specialty journals containing items of interest and use to him in his practice.

On this basis, with reading, editing and digesting on a volunteer basis, Audio-Digest has developed a weekly series of tape recordings of one hour's duration, which the general practitioner can play in his home or office. If his time is too occupied for such pursuits during his working or home hours, he can easily convert his tape recorder to plug into the cigarette lighter in his car and thus pick up three or four minutes' digest between home or hospital calls.

On top of the weekly digests, Audio-Digest has started accumulating entire lecture recordings by nationally recognized experts. These have been made available for more specialized audiences.

The normal handicaps of small size, limited working capital and lack of prestige of a private operation influenced Mr. Pettis to offer his idea to the California Medical Association. With the prestige which the Association can lend to this enterprise,

it is obvious that its potential will be greatly augmented.

In accepting this gift, the Council of the C.M.A. took steps to organize a non-profit corporation, Audio-Digest Foundation. This is a wholly-owned subsidiary of the Association, the profits of which are to be devoted to medical education or other fields in the structure of the medical profession.

The new corporation will be governed by a Board of Trustees which will at all times consist of the voting members of the C.M.A. Executive Committee. These officers include the president, president-elect, speaker of the House of Delegates, chairman of the Council and chairman of the Auditing Committee. Working under this board will be Dr. Edward C. Rosenow, Jr., who has accepted appointment as editor-in-chief. He, in turn, will be aided by an editorial advisory board.

Audio-Digest Foundation will undertake at once to expand its editorial board with outstanding members of the profession. It will also proceed to develop a library of specialized papers by nationally recognized physicians and teachers. This should lead to an auditory abstract and lecture series of great value. In addition to selling its service, Audio-Digest will sell tape recording equipment and provide copies of tapes for its own use and for others who require tape duplicating. The foundation has access to electronic equipment which makes the duplicating process not only speedy but most economical.

Interestingly enough, the cost factor has been so reduced by the availability of some working capital that a one-hour tape recording, digesting current medical literature, can be produced and sold at a cost considerably below the cost of the tape alone when bought blank at the retail store. When a physician has no further use for his tape, he can erase it and use it over and over again for office dictation.

# California MEDICAL ASSOCIATION

## NOTICES & REPORTS

### Audio-Digest Foundation

OWNERSHIP OF A NEW MEDIUM for simplifying and intensifying the individual physician's postgraduate education was taken over by the California Medical Association at the December meeting of the House of Delegates. At that time, a non-profit subsidiary, Audio-Digest Foundation, became an official member of the C.M.A. family.\* Reserves from the enterprise will be distributed to the nation's medical schools through the American Medical Association.

The revolutionary format of Audio-Digest, which tape-records medical literature and lectures, was devised by Jerry L. Pettis, associate director of public relations for the C.M.A. The Foundation's Board of Trustees, the same as that governing C.M.A., has appointed Dr. Donald Lum, Alameda, president; Dr. Albert Daniels, San Francisco, secretary-treasurer; and Dr. Edward C. Rosenow, Jr., Pasadena, editor. Pettis has been appointed executive vice-president of the operation. A Board of Editors, an advisory group that will consist of leading physicians representing all specialty groups, is now being established.

Claron L. Oakley is assistant to the editor for the literature digests. William Tobitt is assistant to the editor for the lecture series.

The services offered to the medical profession by this Foundation are these:

1. A weekly, one-hour tape digesting the current medical literature (approximately 1,900 journals) from the standpoint of significance and practical usage. This is designed primarily for the general practitioner and covers all fields of medicine. Physicians in every state of the union are already subscribing to this service.

A series of bi-weekly tape digests that will summarize the most important specialty literature began

on January 15. The first of this series will be surgical. Internists will have a similar service available on February 15 and obstetricians and gynecologists on March 15.

2. The second service revolves around a system of tape recordings and synchronized visual slides or film strips. Accumulated from on-the-spot recordings at medical conventions and especially prepared lectures for the Audio-Digest library, this service is designed to bring the top medical names into the living room or office of the busy practitioner, with the original author or lecturer's own voice and illustrative slides. Lecture tapes by the leading professors in the nation's 79 medical schools are now being assembled and will be made available to private physicians, medical schools and libraries, and government medical services. All lecture material will be reviewed each six months to maintain its currency.

Complete subscription information is available by writing Audio-Digest Foundation, 800 North Glendale Avenue, Glendale 6, California.

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\*For additional information, see Council meeting minutes, page 144, and editorial, page 104.